

Abstract of the Disclosure

The present invention discloses a ferroelectric memory device and a method of forming the same. The ferroelectric memory device includes a semiconductor substrate, a capacitor lower electrode, a ferroelectric layer, and a capacitor upper electrode. The
5 semiconductor substrate has a lower structure. The capacitor lower electrode has a cylindrical shape and a certain height. The ferroelectric layer is conformally stacked over substantially the entire surface of the semiconductor substrate including the capacitor lower electrode. The capacitor upper electrode has a spacer shape and is formed around the sidewall of the ferroelectric layer that surrounds the lower electrode. In the method of forming the
10 ferroelectric memory device, a semiconductor substrate having an interlayer dielectric layer and a lower electrode contact formed through the interlayer dielectric layer is prepared. A cylindrical capacitor lower electrode is formed on the interlayer dielectric layer to cover the contact. A ferroelectric layer is conformally stacked at the semiconductor substrate having the capacitor lower electrode. A spacer-shaped upper electrode is formed around the sidewall
15 of the ferroelectric layer that surrounds the capacitor lower electrode.